

AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

1. (Currently amended): A micro electro discharge machining method, comprising:
changing a relative distance between a tool electrode and a workpiece at a predetermined frequency and ~~in an~~ with a predetermined amplitude ~~as desired~~;

controlling discharge pulse output in synchronization with the change in the relative distance between the tool electrode and the workpiece such that the discharge pulse output is generated when the relative distance between the tool electrode and the workpiece becomes sufficiently small such that discharge is performed; and

performing electro discharge machining between the tool electrode and the workpiece.

2. (Currently amended): The micro electro discharge machining method according to claim 1, ~~wherein~~ further comprising

providing the tool electrode ~~is transferred~~ with a pattern of a plate electrode by electro discharge machining with ~~said the~~ the plate electrode, said plate electrode being provided with a plurality of holes in ~~said the~~ the pattern,

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~~changing, during said the~~ electro discharge machining process, a relative distance between the tool electrode and the plate electrode is changed at a predetermined frequency and ~~in an~~ with a predetermined amplitude ~~as desired~~, and

outputting a discharge pulse ~~is output~~ in synchronization with the change in the relative distance between the tool electrode and the plate electrode.

3. (Currently amended): The micro electro discharge machining method according to claim 2, ~~wherein~~ further comprising

providing multiple hole groups ~~are arranged and formed~~ in the plate electrode, each ~~said~~ hole group including a plurality of holes, and

producing the tool electrode ~~is produced by~~ sequentially electro discharge machining ~~sequentially~~ using the multiple hole groups in the plate electrode.

4. (Currently amended): A micro electro discharge machining apparatus, comprising:

a tool electrode;

a circuit ~~for generating~~ that generates pulsed electric discharge between the tool electrode and a workpiece;

a first device ~~for positioning~~ that positions the workpiece in an XY-plane;

a second device ~~for positioning~~ that positions the tool electrode in a Z-direction orthogonal to the XY-plane;

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a vibration member ~~for changing~~ that changes a relative distance between the tool electrode and the workpiece at a predetermined frequency and ~~in an~~ with a predetermined amplitude ~~as desired~~; and

a controller ~~for controlling~~ that controls a discharge pulse in synchronization with the change in the relative distance between the tool electrode and the workpiece such that the discharge pulse is output when the relative distance between the tool electrode and the workpiece become sufficiently small such that discharge is performed.

5. (Currently amended): The micro electro discharge machining apparatus according to claim 4, further comprising:

a plate electrode provided with a plurality of holes ~~to be used for producing~~ configured to produce the tool electrode, ~~wherein~~;

the plate electrode is positioned in the XY-plane by the first device;;

the circuit generates pulsed electric discharge between the tool electrode and the plate electrode;; and

the controller controls a discharge pulse in synchronization with the change in a relative distance between the tool electrode and the plate electrode.

6. (Original): The micro electro discharge machining apparatus according to claim 5, wherein

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the plate electrode is provided with multiple hole groups each including a plurality of holes.

7. (New): The micro electro discharge machining method according to claim 1, wherein the relative distance at which the discharge pulse is output is determined in association with a minimum distance between the tool electrode and the workpiece.

8. (New): The micro electro discharge machining apparatus according to claim 4, wherein the relative distance at which the discharge pulse is output is determined in association with a minimum distance between the tool electrode and the workpiece.